

**REMARKS**

The 4 August 2003 official action addressed claims 1-32. Claims 1-3, 5-7, 9-10, 11-13, 15-17, 19-20, 21-23, 25-26, 27-29 and 31-32 are amended. Claims 33 and 34 are added. Claims 1-34 are pending.

For the examiner's convenience, applicants have attached a clean set of claims at the end of the reply.

**1. Overview of amendments**Claim amendments

Independent claims 1 and 11 are amended to specify that production data is obtained from a production system that is used to produce a programming event, and that the production data is then processed to generate metadata for the programming event. These claims are also amended to eliminate the feature of a hierarchy of categories, which is now recited in claims 3 and 13.

Claims 2 and 12 are amended to incorporate features previously recited in claims 3 and 13.

Claims 5 and 15 are amended to specify that the production data includes rundown data, an example of which is provided in Figure 4 of the application.

Claims 6 and 16 are amended to specify that the production data includes script data, an example of which is provided in Figure 3 of the application.

Claims 7 and 17 are amended to be consistent with claims 1 and 11.

Claims 9 and 11 are amended to specify that the production data includes script data and rundown data.

Claims 10 and 20 are amended to specify that a predetermined number of keywords is selected from among keywords generated for a programming event.

Independent claims 21 and 27 are amended to specify that production data is obtained from a production system that is used to produce a programming event, and that the production data is then processed to generate keywords for the programming event. These claims are also amended to

eliminate the feature of a hierarchy of categories, which is now recited in new claims 33 and 34.

Claims 22 and 28 are amended to clarify that nouns and verbs in the production data are used as candidate keywords.

Claims 23 and 29 are amended to be consistent with claims 21 and 27.

Claims 25 and 31 are amended to specify that the production data includes one or more of rundown data and script data.

Claims 26 and 32 are amended to specify that production data for individual segments of a program is identified and used for generating keywords for individual segments.

Additional amendments are made to the claims to clarify their features.

No new matter is added.

## **2. Response to objections and rejections**

### Section 101 rejections

Claims 1-10 and 21-26 are amended to recite that data is processed and then stored in a computer readable medium. These claims are believed to fully comply with Section 101.

### Prior art rejections

Claims 1-2, 5-6, 10-12, 15-16, 20-22, 25-28 and 31-32 were rejected under 35 USC §102(e) as being anticipated by Killian (U.S. 6,163,316). Claims 3-4, 23-24 and 29-30 were rejected under 35 USC §103(a) as being obvious over Killian in view of Lawler (U.S. 5,758,259). Claims 7-9 and 17-19 were rejected as being obvious over Killian in view of Hullinger (U.S. 6,295,092).

The following discussion addresses the claims individually to show the patentable distinctions with respect to the cited references.

**Summary**

All of the claims are directed to processing that generates metadata that describes the subject matter of programming events (e.g. television programs).

Of the cited references, only Hullinger involves creating data that describes programs. The Killian and Lawler references involve the use of data that describes programs to determine whether a viewer will like those programs based on data that describes characteristics that a viewer likes.

The person of ordinary skill in this field would not confuse the creation of data that describes television programs with the creation of data that describes what a viewer likes, or the use of that data to determine particular programs that a viewer will like. However, the official action repeatedly applies the references as though there is no distinction between these concepts.

Before rejecting a claims, it must be determined what the person of ordinary skill would understand those claims to mean, in light of their literal language and the context provided by the specification. The meaning of the present claims is not unclear. Each of the present independent claims expressly states that it is directed to processing that generates metadata that describes a programming event. They are not directed to creating data describing what a viewer likes, or determining whether a viewer will like a particular program. Prior art involving these other concepts has little relevance to the present claims and does not provide a basis for rejecting them.

**Claims 1 and 11**

These claims generally relate to a programmable device or a method in a programmable device by which production data is obtained from a production system and is processed to generate metadata that describes a programming event.

Killian does not teach such a system. Killian describes an end-user device that receives program listing information (which is analogous to the program metadata produced through the processing of these claims) and uses the program listing information for end-user purposes such as displaying a program guide to the user, identifying programs of interest to the user using a viewer

profile, and scheduling recording of programs of interest using the viewer profile.

Claims 1 and 11 specify that production data is obtained from a production system used in the production of a programming event. Applicant notes that the Information Disclosure submitted with this reply includes information describing the ENPS broadcast news production system, which is cited in the application at paragraph 61 as an example of a production system referred to in the application and claims. Killian does not involve such productions systems and does not teach obtaining data from such systems or processing it to produce metadata that describes a programming event. Killian's program listing data is not obtained from a production system.

Claims 1 and 11 also specify assigning respective scores to each of multiple categories so as to describe the subject matter of the programming event through its set of category scores. The official action states that Killian (col. 11, lines 22-31) teaches analyzing data to determine numerical goodness of fit scores associated with categories. However Killian actually teaches assigning a single score to a program so as to rank it with respect to other programs. Killian does not teach assigning scores to multiple categories as a way of describing the subject matter of a single program. Further, Killian's score is not generated by analyzing production data obtained from a production system, rather it is generated by comparing program listing data to data representing the viewer's preferences.

Claims 1 and 11 further require assigning keywords to a programming event based on analysis of the production data for that programming event. The official action states that Killian discloses determining keywords associated with a programming event (col. 9, lines 43-67). However Killian actually teaches a viewer profile that includes keywords that are chosen by the viewer to indicate subject matter that the viewer likes. The keywords are not assigned based on analysis of production data by or in a programmable device, they do not describe the subject matter of a specific program, and are not stored as metadata describing a specific program.

Claims 1 and 11 also require storing numerical goodness of fit scores and keywords as metadata describing a programming event. The official action states that Killian teaches this feature at col. 8, lines 49-52, col. 10, lines 51-60, and col. 15, lines 35-38. The cited portions teach the storage of program listings, storage of viewer profiles, and storing a score for each program that indicates how much the viewer will like it. Only the storage of program listings is relevant to the present claims, and such storage is not done after creating the program listings in the manner set forth in the claim, nor does Killian indicate that the stored program listings have the category scores required by the present claims.

#### **Claims 2 and 12**

These claims require that keywords are assigned by determining goodness of fit scores for predefined categories for each of candidate keywords (i.e. keywords that are being analyzed to determine whether they would be good keywords for a particular programming event), and then determining a subset of the candidate keywords based on those scores. The official action states that this feature is taught at col. 10, lines 25-36. The cited passage actually describes the process of a viewer assigning scores to keywords to indicate subject matter that the viewer likes. The assignment is not based on analysis of production data for a particular program, each keyword does not have multiple scores corresponding to multiple categories, and a subset of keywords is not created based on these scores.

#### **Claims 3 and 13**

These claims specify that the categories to which numerical goodness of fit scores are assigned are arranged in a three-level hierarchy. None of the cited references teaches such a manner for representing the subject matter of a programming event.

**Claims 4 and 14**

These claims specify that a representative subset of the category goodness of fit scores is determined and stored in the metadata. The official action refers to Lawler (Table 2) as teaching this feature. Lawler's Table 2 actually shows counts of the number of times that various keywords appeared in programs received by a viewer. These scores do not indicate a degree to which a category describes a specific program, and are not specific to a single program. Claim 4 specifies the selection of a subset of the goodness of fit scores of claim 1, which are generated from the production data as a whole, through analysis of the production data, to represent the subject matter of the program. Lawler's count of keywords of programs received by the viewer is not relevant to these claims.

**Claims 5 and 15**

These claims specify that the production data for a programming event includes rundown data. None of the cited references involves rundown data in any form.

**Claims 6 and 16**

These claims specify that the production data for a programming event includes script data. None of the cited references involves script data in any form.

**Claims 7 and 17**

These claims specify that analysis is performed on the production data to determine a time and duration for individual segments of a program, and metadata is then produced to describe an individual segment of the program. The official action notes that Hullinger produces metadata describing individual segments of programs. However, Hullinger produces data about segments of a program by recording a broadcast of those programs, analyzing the recorded broadcast by audio and video analysis, and then creating information about each segment based on the audio and video analysis. Hullinger does not obtain

production data from a production system used to create the program, and does not process such data to determine the individual segments of a program or generate data describing the individual segments of the program.

**Claims 9 and 19**

These claims specify that the production data for a programming event includes script data and rundown data. None of the cited references involves script data or rundown data in any form.

**Claims 21 and 27**

These claims generally relate to a programmable device or a method in a programmable device by which keywords that describe a programming event are selected for inclusion in the metadata that describes the programming event.

Killian does not teach such a system. Killian describes an end-user device that determines programs of interest to a viewer using a viewer profile. To the extent that Killian involves the selection of keywords, it is selection of keywords by the viewer, without reference to a particular program, to indicate the types of programs that the viewer likes. Killian does not involve a programmable device that assigns keywords to describe a specific program based on processing of data that describes that program.

Claims 21 and 27 now specify that production data for a programming event is obtained from a production system that is used to produce the programming event. Neither Killian nor the other cited references teaches any type of interfacing with a production system or use of production data for any purpose.

Claims 21 and 27 further require determining candidate keywords for the programming event from production data for the programming event. The official action states that this feature is taught by Killian at col. 9, line 34. The cited portion actually discusses templates that are used by a viewer to specify keywords that indicate what the viewer likes. It is the viewer who selects keywords from among those in the template, not the device, and the selection is

done from a predefined template that has no relation to any particular program, not from production data for a specific program.

Claims 21 and 27 further require providing the candidate keywords as input to a classification tool and, for each keyword, generating a set of numerical goodness of fit scores each corresponding to predefined category. The official action states that Killian teaches keywords that can be ranked at col. 9, lines 43-57. However the cited portion discusses keywords that might be included in a template and selectable by the user to indicate what the viewer likes. There is no discussion of a classification tool, or providing keywords as input to a classification tool, or generating sets of numerical goodness of fit scores for each keyword using a classification tool, or the performance of such processing by a programmable device, or doing so to assign keywords that describe a program.

Claims 21 and 27 further require selecting keywords to represent the programming event from among the candidate keywords based on their sets of goodness of fit scores. The official action states that this feature is taught by Killian at col. 10, lines 51-55. However the cited portion actually teaches storing viewer profile data that represents the type of programs that a viewer likes, not the subject matter of a specific program. Killian does not teach selection of keywords to represent a program based on sets of numerical category goodness of fit scores generated from analysis of production data.

Claims 21 and 27 further require storing the keywords as part of metadata describing the programming event. The official action states that Killina teaches this feature at col. 10, lines 55-60. The cited portion actually states a device may store more than one viewer profile and may combine viewer profiles. Killian does not teach storing metadata for describing a program that is comprised of keywords that the device has generated by processing production data in the manner described above.

#### **Claims 22 and 28**

These claims specify that determining candidate keywords involves identifying verbs and nouns in information describing the programming event



and using the verbs and nouns as candidate keywords. The official action notes that Killian shows keywords that are verbs and nouns at col. 9, lines 45-46. However these are keywords that are listed in a viewer profile template that the viewer may select to indicate the types of programs he is interested in. Claims 22 and 28 specify a process in which a programmable device selects nouns and verbs from the descriptive information that is available for a programming event, then provides those nouns and verbs as input to a classification tool to generate sets of numerical category scores for each keyword, then assigns keywords to describe the programming event based on their sets of category scores. Killian's nouns and verbs are selected by the viewer, they represent the viewer's interests rather than the subject matter of a program, and they are not subjected to further processing to determine whether to assign them as keywords describing a particular program.

#### **Claims 23 and 29**

These claims specify that keywords are assigned to a program based on the correlation between their sets of numerical category goodness of fit scores and a set of numerical goodness of fit scores for the descriptive information of the programming event as a whole. The official action notes that Lawler determines a correlation between programs and viewer preferences (col. 9, lines 50-62). This is not what is claimed. The claims refer to determining a correlation between a keyword candidate (a word that is being analyzed to determine if it should be used as a keyword to describe a programming event) and the information available about that programming event as a whole. The correlation is determined through the use of a categorization tool. The categorization tool analyzes input (a keyword candidate, or a set of descriptive information) and provides output in the form of scores assigned to predefined categories that show how well each of those categories fits the input. The sets of category scores for a keyword candidate are compared to the set of category scores for the descriptive information as a whole, and the candidate keywords showing the highest correlation are assigned as keywords for the programming

event. Lawler involves ranking programs based on viewer preferences and is not relevant to assigning keywords to describe a particular programming event.

#### **Claims 24 and 30**

These claims refer to the selection of keywords from among candidate keywords by a thresholding procedure that is based on the numerical goodness of fit scores associated with each candidate keyword. The official action states that such thresholding is taught by Lawler at col. 9, lines 53-57. The cited portion of Lawler actually states that when ranking programs based on correlations between the viewer's preferences and the characteristics of the program, a thresholding procedure is used to eliminate programs whose correlation is less than the average correlation of all programs. This is not relevant to assigning keywords to describe a programming event.

#### **Claims 25 and 31**

These claims specify that the production data that is processed to assign keywords includes script data or rundown data. None of the cited references involves script data or rundown data in any form.

#### **Claims 26 and 32**

These claims specify that before assigning keywords to a programming event, the production data is processed to determine individual segments of a program, and then keywords for an individual segment of the program are assigned using production data that is specific to the individual segment. None of the cited references teaches or suggests such processing.

#### **Claims 33 and 34**

These claims specify that the categories to which numerical goodness of fit scores are assigned are arranged in a three-level hierarchy. None of the cited references teaches such a manner for representing the subject matter of a programming event.

The foregoing amendments and remarks address all bases for objection and rejection and are believed to place the case in condition for allowance. The examiner is invited to contact the undersigned to resolve any remaining issues.

Respectfully submitted,

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**CLEAN COPY OF THE CLAIMS**

1. (Currently Amended) A method in a programmable device for generating metadata for transmission to a programming event receiver, the metadata describing a programming event, the method comprising:

obtaining production data corresponding to the programming event from a production system used in the production of the programming event, the production data including descriptive information and timing information for the programming event;

assigning respective numerical goodness of fit scores to respective predefined categories based on analysis of the production data to describe the subject matter of the programming event, wherein the numerical goodness of fit score assigned to a category represents a degree to which the category is descriptive of the subject matter of the programming event;

assigning keywords to the programming event based on analysis of the production data; and

storing numerical goodness of fit scores and keywords for the programming event in a computer readable medium in association with time data and descriptive data for the programming event as the metadata for transmission to a programming event receiver describing the programming event.

2. (Currently Amended) The method claimed in claim 1, wherein assigning keywords comprises:

determining respective numerical goodness of fit scores corresponding to said categories for each of candidate keywords; and

determining a representative subset of said candidate keywords by a thresholding procedure using said numerical goodness of fit scores for said candidate keywords.

3. (Currently Amended) The method claimed in claim 1, wherein said predefined categories are arranged in a hierarchy comprising at least a set of top-level categories, respective sets of first level sub-categories each corresponding to and encompassed by a top level category, and respective sets of second level sub-categories each corresponding to and encompassed by a first level sub-category.

4. (Previously Amended) The method claimed in claim 1, further comprising determining a representative subset of said numerical goodness of fit scores, and

wherein storing numerical goodness of fit scores comprises storing said representative subset of said numerical goodness of fit scores.

5. (Currently Amended) The method claimed in claim 1, wherein the production data comprises rundown data produced by the production system.

6. (Currently Amended) The method claimed in claim 1, wherein the production data comprises script data produced by the production system.

7. (Currently Amended) The method claimed in claim 6, wherein assigning numerical goodness of fit scores and assigning key words are preceded by analysis of the production data to determine a time and a duration of individual segments of a program described by the production data, and  
wherein said metadata is generated using production data that is specific to an individual segment of said program such that the metadata is descriptive of that individual segment.

8. (Original) The method claimed in claim 7, wherein determining a time and duration is preceded by processing the production data to conform to a standard delimited format.

9. (Currently Amended) The method claimed in claim 7, wherein the production data comprises rundown data and script data produced by the production system.

10. (Currently Amended) The method claimed in claim 1, wherein storing keywords comprises selecting a predetermined number of said assigned keywords for storage.

11. (Currently Amended) A programmable device for generating metadata for transmission to a programming event receiver, the metadata describing a programming event, the device comprising a computer readable medium storing programming code to control the device to perform processing comprising:

obtaining production data corresponding to the programming event from a production system used in the production of the programming event, the production data including descriptive information and timing information for the programming event;

assigning respective numerical goodness of fit scores to respective predefined categories based on analysis of the production data to describe the subject matter of the programming event, wherein the numerical goodness of fit score assigned to a category represents a degree to which the category is descriptive of the subject matter of the programming event;

assigning keywords to the programming event based on analysis of the production data; and

storing numerical goodness of fit scores and keywords for the programming event in a computer readable medium in association with time data and descriptive data for the programming event as the metadata for transmission to a programming event receiver describing the programming event.

12. (Currently Amended) The device claimed in claim 11, wherein assigning keywords comprises:

determining respective numerical goodness of fit scores corresponding to said categories for each of candidate keywords; and

determining a representative subset of said candidate keywords by a thresholding procedure using said numerical goodness of fit scores for said candidate keywords.

13. (Currently Amended) The device claimed in claim 12, wherein said predefined categories are arranged in a hierarchy comprising at least a set of top-level categories, respective sets of first level sub-categories each corresponding to and encompassed by a top level category, and respective sets of second level sub-categories each corresponding to and encompassed by a first level sub-category.

14. (Previously Amended) The device claimed in claim 11, said processing further comprising determining a representative subset of said numerical goodness of fit scores, and

wherein storing numerical goodness of fit scores comprises storing said representative subset of said numerical goodness of fit scores.

15. (Currently Amended) The device claimed in claim 11, wherein the production data comprises rundown data produced by the production system.

16. (Currently Amended) The device claimed in claim 11, wherein the production data comprises script data produced by the production system.

17. (Currently Amended) The device claimed in claim 16, wherein assigning numerical goodness of fit scores and assigning key words are preceded by analysis of the production data to determine a time and a duration of individual segments of a program described by the production data, and

wherein said metadata is generated using production data that is specific to an individual segment of said program such that the metadata is descriptive of that individual segment.

18. (Original) The device claimed in claim 17, wherein determining a time and duration is preceded by processing the production data to conform to a standard delimited format.

19. (Currently Amended) The device claimed in claim 17, wherein the production data comprises rundown data and script data produced by the production system.

20. (Currently Amended) The device claimed in claim 11, wherein storing keywords comprises selecting a predetermined number of said assigned keywords for storage.

21. (Currently Amended) A method in a programmable device for generating metadata for transmission to a programming event receiver, the metadata describing a programming event, the method comprising:

- obtaining production data corresponding to the programming event from a production system used in the production of the programming event, the production data including descriptive information for the programming event;

- determining candidate keywords from the production data;

- providing the candidate keywords as respective inputs to a classification tool and generating for each of said candidate keywords a set of numerical goodness of fit scores each corresponding to a predefined category, wherein the numerical goodness of fit score corresponding to a category represents a degree to which the category is descriptive of the candidate keyword;

- selecting keywords to represent the programming event from among said candidate keywords based on the set of numerical goodness of fit scores corresponding to the categories of the classification hierarchy for each of said candidate keywords; and

- storing said selected keywords in a computer readable medium as a component of said metadata describing the programming event.

22. (Original) The method claimed in claim 21, wherein determining candidate keywords comprise identifying verbs and nouns in said production data and using said verbs and nouns as candidate key words.

23. (Currently Amended) The method claimed in claim 21, wherein selecting keywords is preceded by:

- determining correlations between sets of numerical goodness of fit scores generated from said candidate keywords and a set of numerical goodness of fit scores generated by providing said descriptive information for the programming event as input to said classification tool; and

- discarding candidate keywords having low correlation.

24. (Previously Amended) The method claimed in claim 21, wherein selecting keywords comprises eliminating candidate keywords by a thresholding process using a highest numerical goodness of fit score associated with each candidate keyword.

25. (Currently Amended) The method claimed in claim 21, wherein said production data comprises at least one of rundown data and script data for the programming event.

26. (Currently Amended) The method claimed in claim 21, wherein said production data further comprises timing data,

- wherein determining candidate keywords is preceded by determining a time and a duration of individual segments of a program described by the production data, and

wherein said candidate keywords are generated using production data that is specific to an individual segment of said program such that the candidate keywords are descriptive of that individual segment.

27. (Currently Amended) A programmable device for generating metadata for transmission to a programming event receiver, the metadata describing a programming event, the device comprising a computer readable medium storing programming code for controlling the device to perform processing comprising:

obtaining production data corresponding to the programming event from a production system used in the production of the programming event, the production data including descriptive information for the programming event;

determining candidate keywords from the production data;

providing the candidate keywords as respective inputs to a classification tool and generating for each of said candidate keywords a set of numerical goodness of fit scores each corresponding to a predefined category, wherein the numerical goodness of fit score corresponding to a category represents a degree to which the category is descriptive of the candidate keyword;

selecting keywords to represent the programming event from among said candidate keywords based on the set of numerical goodness of fit scores corresponding to the categories of the classification hierarchy for each of said candidate keywords; and

storing said selected keywords in a computer readable medium as a component of said metadata describing the programming event.

28. (Currently Amended) The device claimed in claim 27, wherein determining candidate keywords comprise identifying verbs and nouns in said production data and using said verbs and nouns as candidate key words.

29. (Currently Amended) The device claimed in claim 27, wherein selecting keywords is preceded by:

determining correlations between sets of numerical goodness of fit scores generated from said candidate keywords and a set of numerical goodness of fit scores generated by providing said descriptive information for the programming event as input to said classification tool; and

discarding candidate keywords having low correlation.

30. (Previously Amended) The device in claim 27, wherein selecting keywords comprises eliminating candidate keywords by a thresholding process using a highest numerical goodness of fit score associated with each candidate keyword.

31. (Currently Amended) The device claimed in claim 27, wherein said production data comprises at least one of rundown data and script data for the programming event.

32. (Currently Amended) The device claimed in claim 27, wherein said production data further comprises timing data,



wherein determining candidate keywords is preceded by determining a time and a duration of individual segments of a program described by the production data, and

wherein said candidate keywords are generated using production data that is specific to an individual segment of said program such that the candidate keywords are descriptive of that individual segment.

33. (New) The method claimed in claim 21, wherein said predefined categories are arranged in a hierarchy comprising at least a set of top-level categories, respective sets of first level sub-categories each corresponding to and encompassed by a top level category, and respective sets of second level sub-categories each corresponding to and encompassed by a first level sub-category.

34. (New) The device claimed in claim 27, wherein said predefined categories are arranged in a hierarchy comprising at least a set of top-level categories, respective sets of first level sub-categories each corresponding to and encompassed by a top level category, and respective sets of second level sub-categories each corresponding to and encompassed by a first level sub-category.